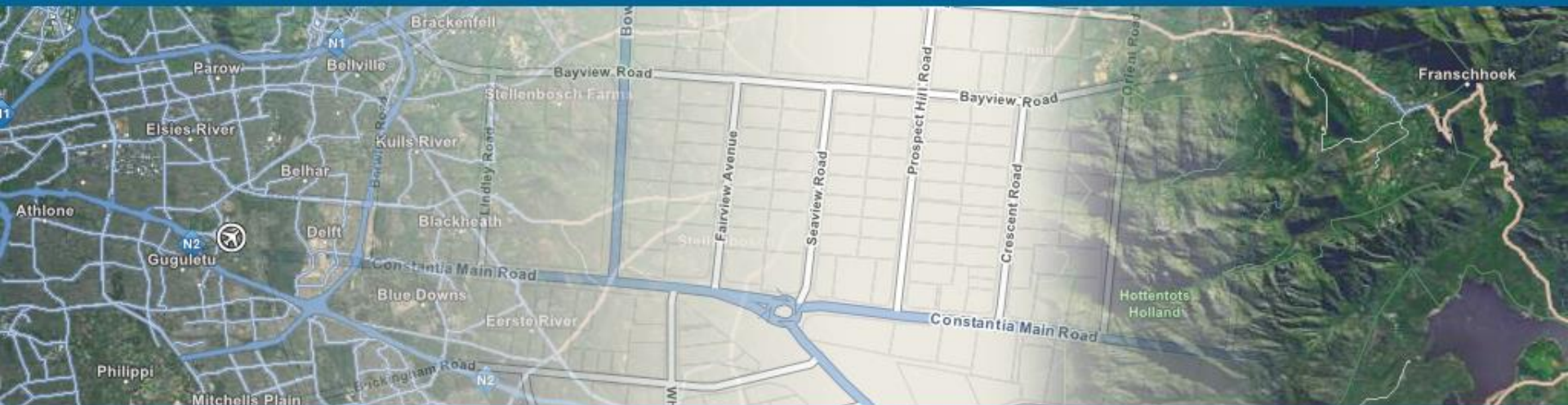


# ISO Geodetic Registry and related ISO/TC 211 geodetic standards

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# Outline

- Overview: ISO Technical Committee (TC) 211 – Geographic Information and Geomatics
- ISO Geodetic registry
- TC 211 Geodetic standards
  - 19111, 19127 and 19161
- Other TC 211 geodetic related or support standards
  - 6709, 19116, 1191130, 19135, 19159 and 19162



# ISO/TC 211

## Geographic information/geomatics

- ISO Technical Committee (TC) 211, Geographic information/Geomatics, is one among over 200 ISO technical committees working on development and maintenance of a variety of standards.
- TC 211 is developing a **suite of standards for geographic and geospatial information** that forms a basis upon which **geomatics** – the modeling of the Earth – can be performed.
- The **ISO process** for standardizing is an **open, consensus based public method for establishing standards**.



# ISO/TC 211 provides ...

... a **structure for representing geographic information** in a consistent, standardized manner.

It includes the **geodetic framework** for identifying where information was collected for use in modeling, representing, encoding and disseminating spatial information.



# The ISO Geodetic Registry (Part 1 of 2)

## ➤ A database (register)

- Defines global and regional geodetic reference frames
- Provides transformations between geodetic reference frames
- Must conform to ISO standards
- Online information system

## ➤ Benefits

- Meets the vision of an accurate, sustainable and accessible Global Geodetic Reference Frame (**GGRF**) to support science and society
- Sharing of international, national and regional reference frame definitions and transformations



# The ISO Geodetic Registry (Part 2 of 2)

## ➤ Control Body (CB)

- CB approves the content of the Registry
- Validates information using authoritative sources
- Membership - geodetic experts nominated by:
  - TC 211 member countries (currently 15): Australia, Canada, China, Denmark, France, Germany, Japan, New Zealand, Norway, Republic of Korea, South Africa, Spain, Sweden, United Kingdom and USA
    - Nominations pending: Russia and India
  - Liaison organizations: FIG, IAG, IOGP and PAIGH (South America)
- Chair, Mike Craymer, Canada; Larry Hothem, Vice-Chair
  - Appointed by the IAG

## ➤ Public release is pending

- Populated with initial set of most global and regional reference frames and transformations



# ISO/TC 211 Geodetic standards

- **19111** – Referencing by coordinates
- **19127** – Geodetic register
- **19161** – Geodetic references – Part 1: The International Terrestrial Reference System (ITRS)



# 19111 (2018) – Referencing by coordinates

- Data model of how coordinates, dynamic and static reference frames, geoid-based vertical datums, and transformations are represented.
  - modern dynamic 3D reference frames
  - modern geoid-based vertical datums
  - reference frames defined as transformations from other reference frames (e.g., from ITRF)
  - uses modern terminology (e.g., such as used in the IERS Conventions)
- Since initial standard published in the 1990s, adopted by many countries and organizations –
  - Used by GIS/geomatics industry, mapping agencies and academic institutions
- **ISO Geodetic Registry** must conform to this standard
- **Project team lead:** Roger Lott, UK and member Control Body, ISO Geodetic Registry





# 19127 (2018) – Geodetic Register

- **Defines** the management and operation of the ISO Geodetic Registry and identifies the required data elements that conforms with 19111.
- **Publication** is pending
- **Project team lead:** Patrick Vorster, South Africa and member Control Body, ISO Geodetic Registry



# 19161-1 – Geodetic references – Part 1: The International Terrestrial Reference System (ITRS)

**Standard provides basic information and requirements related to the:**

- ITRS, specifically its definition, realizations and access.

**It:**

- endorses definitions & terminology adopted by International Union of Geodesy and Geophysics (IUGG), the International association of Geodesy (IAG) and the International Astronomical Union (IAU)
- describes various realizations (such as ITRF, WGS-84, NAD, etc.)
- provides the required methods of realizing the ITRS.
- describes various ways of getting positions expressed in a realization of the ITRS
- **Project team lead:** Claude Boucher; Thierry Gattacceca, Technical editor & member Control Body, Geodetic registry



# Other TC 211 geodetic related and associated standards

- **6709:2008** - - Standard representation of geographic point locations by coordinates (revision underway - led by Japan)
- **19116:2004** - - Positioning services (revision underway - led by Japan)
  - **Associated standards (references 19111 and 19161):**
- **19130** - - Imagery sensor models for geopositioning – optical, SAR, InSAR, LiDAR and SONAR
- **19135-2** - - Procedures for item registration
- **19159** - - Calibration and validation of remote sensing imagery sensors – optical, LiDAR, SAR/InSAR and SONAR
- **19162** - - Well-known text representation of coordinate reference systems



**Information about ISO/TC 211 standards is available at:**

<https://www.iso.org/committee/54904.html>  
<https://committee.iso.org/home/tc211>

## **Contacts about the ISO Geodetic Registry:**

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# **Thank You**

